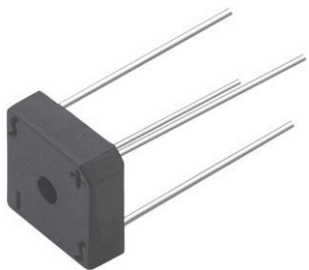


## Single Phase Rectifier Bridge, 3 A, 6 A



D-72

### FEATURES

- Suitable for printed circuit board or chassis mounting
- Compact construction
- High surge current capability
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### DESCRIPTION

The VS-KBPC series of single phase rectifier bridge consists of four silicon junctions connected as a full bridge. These devices are intended for general use in industrial and consumer equipment.

### PRIMARY CHARACTERISTICS

|                       |                     |
|-----------------------|---------------------|
| $I_{O(AV)}$           | 3.0 A to 6.0 A      |
| $V_{RRM}$             | 50 V to 1000 V      |
| Package               | D-72                |
| Circuit configuration | Single phase bridge |

### MAJOR RATINGS AND CHARACTERISTICS

| SYMBOL    | CHARACTERISTICS | VALUES<br>KBPC1 | VALUES<br>KBPC6 | UNITS            |
|-----------|-----------------|-----------------|-----------------|------------------|
| $I_O$     |                 | 3               | 6               | A                |
|           | $T_C$           | 50              | 50              | °C               |
| $I_{FSM}$ | 50 Hz           | 50              | 125             | A                |
|           | 60 Hz           | 55              | 137             |                  |
| $I^2t$    | 50 Hz           | 12.5            | 78              | A <sup>2</sup> s |
|           | 60 Hz           | 11.4            | 71              |                  |
| $V_{RRM}$ | Range           | 50 to 1000      |                 | V                |
| $T_J$     |                 | -40 to +150     |                 | °C               |

### ELECTRICAL SPECIFICATIONS

#### VOLTAGE RATINGS

| PART NUMBER | $V_{RRM}$ , MAXIMUM REPETITIVE<br>PEAK REVERSE VOLTAGE<br>V | $V_{RSM}$ , MAXIMUM NON-REPETITIVE<br>PEAK REVERSE VOLTAGE<br>V | $V_{RMS}$ , MAXIMUM RECOMMENDED<br>RMS SUPPLY VOLTAGE<br>V |
|-------------|-------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------|
| VS-KBPC1005 | 50                                                          | 50                                                              | 20                                                         |
| VS-KBPC101  | 100                                                         | 100                                                             | 40                                                         |
| VS-KBPC102  | 200                                                         | 200                                                             | 80                                                         |
| VS-KBPC104  | 400                                                         | 400                                                             | 125                                                        |
| VS-KBPC106  | 600                                                         | 600                                                             | 250                                                        |
| VS-KBPC108  | 800                                                         | 800                                                             | 380                                                        |
| VS-KBPC110  | 1000                                                        | 1000                                                            | 500                                                        |
| VS-KBPC6005 | 50                                                          | 50                                                              | 20                                                         |
| VS-KBPC601  | 100                                                         | 100                                                             | 40                                                         |
| VS-KBPC602  | 200                                                         | 200                                                             | 80                                                         |
| VS-KBPC604  | 400                                                         | 400                                                             | 125                                                        |
| VS-KBPC606  | 600                                                         | 600                                                             | 250                                                        |
| VS-KBPC608  | 800                                                         | 800                                                             | 380                                                        |
| VS-KBPC610  | 1000                                                        | 1000                                                            | 500                                                        |



| FORWARD CONDUCTION                                   |                   |                                                                 |                                                                                     |              |              |                   |
|------------------------------------------------------|-------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------|--------------|-------------------|
| PARAMETER                                            | SYMBOL            | TEST CONDITIONS                                                 |                                                                                     | VALUES KBPC1 | VALUES KBPC6 | UNITS             |
| Maximum DC output current                            | I <sub>O</sub>    | T <sub>C</sub> = 50 °C, resistive or inductive load             |                                                                                     | 3.0          | 6.0          | A                 |
|                                                      |                   | T <sub>C</sub> = 50 °C, capacitive load                         |                                                                                     | 2.4          | 4.7          |                   |
| Maximum peak one cycle, non-repetitive surge current | I <sub>FSM</sub>  | t = 10 ms, 20 ms                                                | Following any rated load condition and with rated V <sub>RRM</sub> reapplied        | 50           | 125          |                   |
|                                                      |                   | t = 8.3 ms, 16.7 ms                                             |                                                                                     | 55           | 137          |                   |
| Maximum I <sup>2</sup> t capability for fusing       | I <sup>2</sup> t  | t = 10 ms                                                       | Initial T <sub>J</sub> = T <sub>J</sub> maximum<br>100 % V <sub>RRM</sub> reapplied | 12.5         | 78           | A <sup>2</sup> s  |
|                                                      |                   | t = 8.3 ms                                                      |                                                                                     | 11.4         | 71           |                   |
|                                                      |                   | t = 10 ms                                                       |                                                                                     | 17.7         | 110          |                   |
|                                                      |                   | t = 8.3 ms                                                      |                                                                                     | 16.1         | 1000         |                   |
| Maximum I <sup>2</sup> √t capability for fusing      | I <sup>2</sup> √t | t = 0.1 ms to 10 ms, no voltage reapplied                       |                                                                                     | 177          | 1105         | A <sup>2</sup> √s |
| Maximum peak forward voltage per diode               | V <sub>FM</sub>   | I <sub>FM</sub> = 0.5 x I <sub>O</sub> , T <sub>J</sub> = 25 °C |                                                                                     | 1.1          | 1.2          | V                 |
| Typical peak reverse leakage per diode               | I <sub>RM</sub>   | T <sub>J</sub> = 25 °C, 100 % V <sub>RRM</sub>                  |                                                                                     | 10           | 10           | μA                |
|                                                      |                   | T <sub>J</sub> = 150 °C, 100 % V <sub>RRM</sub>                 |                                                                                     | 1.0          | 1.0          | mA                |
| Operating frequency range                            | f                 | 40 to 1000                                                      |                                                                                     |              | Hz           |                   |
| Maximum repetitive peak reverse voltage range        | V <sub>RRM</sub>  | 50 to 1000                                                      |                                                                                     |              | V            |                   |

| THERMAL AND MECHANICAL SPECIFICATIONS   |                   |              |              |                    |
|-----------------------------------------|-------------------|--------------|--------------|--------------------|
| PARAMETER                               | SYMBOL            | VALUES KBPC1 | VALUES KBPC6 | UNITS              |
| Operating and storage temperature range | $T_J$ , $T_{Stg}$ | -40 to +150  |              | $^{\circ}\text{C}$ |
| Thermal resistance, junction to case    | $R_{thJC}$        | -            | -            | K/W                |
| Approximate weight                      |                   | 5            | 6            | g                  |
|                                         |                   | 0.18         | 0.21         | oz.                |

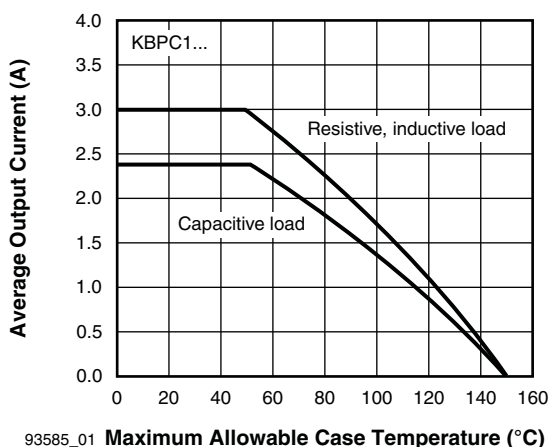


Fig. 1 - Case Temperature Ratings

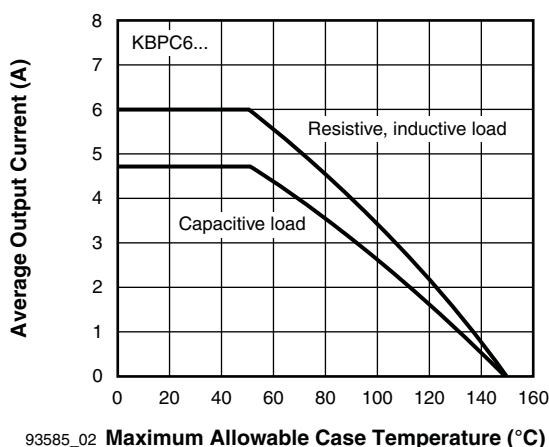


Fig. 2 - Case Temperature Ratings

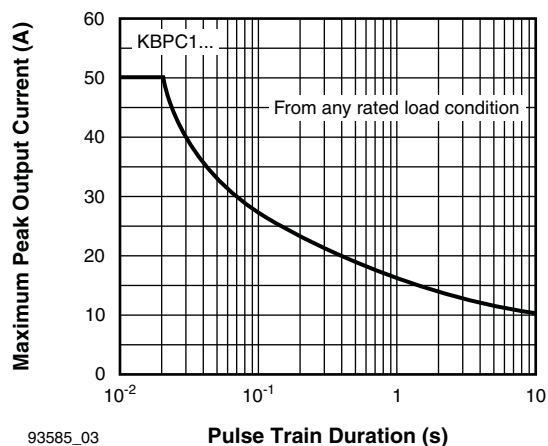


Fig. 3 - Non-Repetitive Surge Ratings

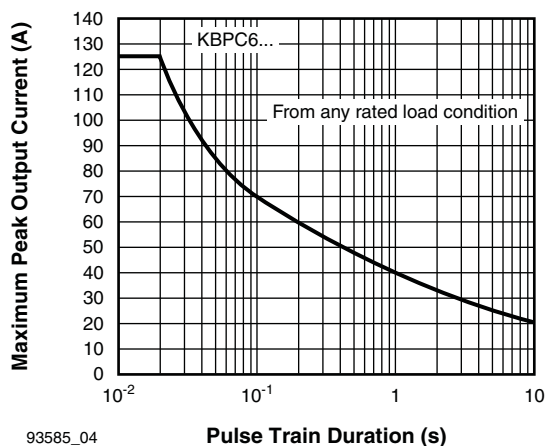
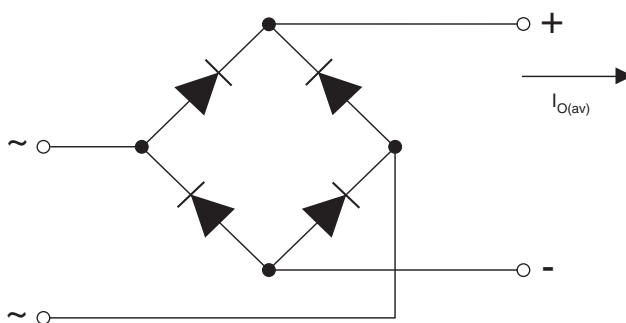


Fig. 4 - Non-Repetitive Surge Ratings

## CIRCUIT CONFIGURATION



### LINKS TO RELATED DOCUMENTS

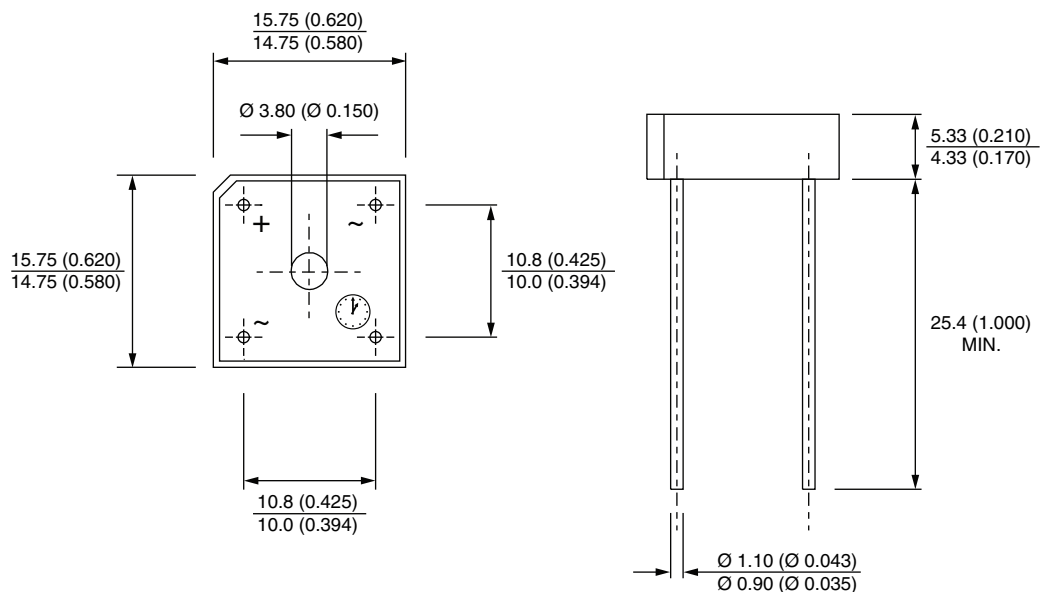
Dimensions

[www.vishay.com/doc?95250](http://www.vishay.com/doc?95250)

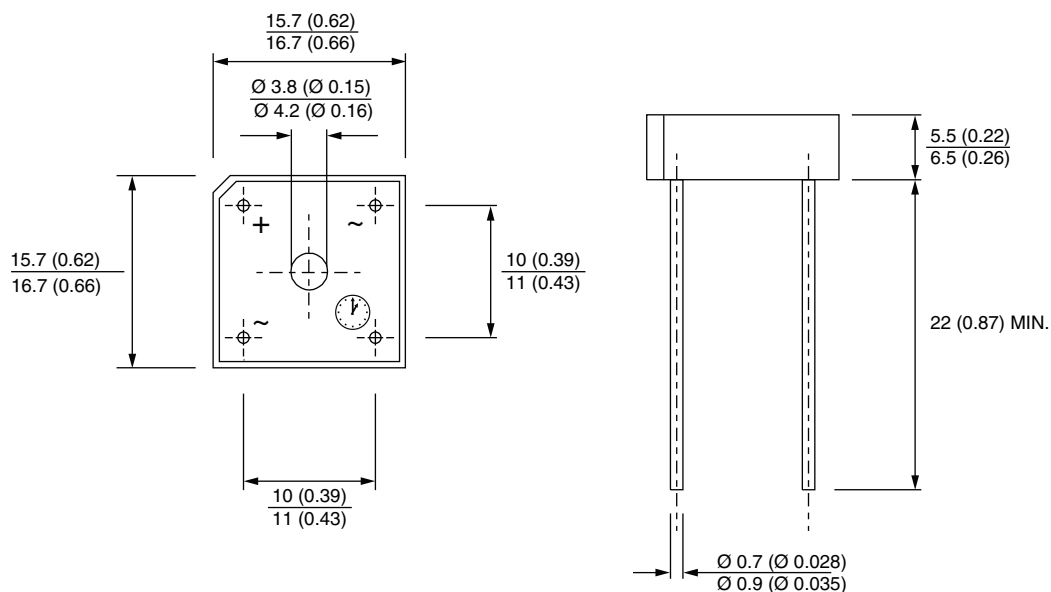


## D-72

**DIMENSIONS** in millimeters (inches): **KBPC6, KBPC8**



**DIMENSIONS** in millimeters (inches): **KBPC1**





## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.